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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/830,361

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Yasushi Inagaki

P279059

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12/03/2003

PILLSBURY WINTHROP, LLP

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EXAMINER

DINH, TUAN T

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 12/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

### Application No.

09/830,361

### Applicant(s)

INAGAKI ET AL.

### Examiner

Tuan T Dinh

### Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-78 is/are pending in the application.
- 4a) Of the above claim(s) 7-78 is/are withdrawn from consideration.
- 5) ☐ Claim(s) 6 is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorczyca et al. (U. S. Patent 5,161,093) in view of Lauffer et al. (U. S. Patent 5,027,253).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

As to claims 1, Gorczyca et al. disclose a printed circuit board (10-figure 3) comprising:

a core substrate (12, column 11, line 7) having a cavity (14, column 11, line 7), and a resin insulating layer (26; 36; 46, column 11, lines 19, 52, and column 12, line 43) and a conductor circuit (28; 38; 48) laminated on the core substrate (12), and

a plurality of capacitors (IC chips 16 or electronic components capable of being as chip capacitors, column 11, line 9) are accommodated in the cavity (14).

Gorczyca et al. do not disclose an IC chip mounted on an outer layer of the conductor circuit, and the capacitors being located immediately below the IC chip.

Lauffer et al. show a multiplayer circuit package (101) in figure 2 comprising an IC chip (235) mounted on an outer layer of the conductor circuit, and the capacitor (141) being located immediately below the IC chip (235).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ an IC chip mounted on an outer layer of the conductor circuit, and the capacitors being located immediately below the IC chip in the PCB of Gorczyca et al., as taught by Lauffer et al. for the purpose of reducing wiring inductance and power supply noise of the package.

As to claim 2, Gorczyca et al. disclose the PCB as shown in figure 3 wherein a resin (15, column 11, line 12) is charged between the plurality of capacitors in the cavity, and the resin has a thermal expansion coefficient smaller than a thermal expansion coefficient of the core substrate (column 11, lines 22-26).

As to claim 3, Don discloses the PCB as shown in figure 3 wherein penetrating openings (23; 33; 43) are formed in the resin layer to form through holes.

3. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorczyca et al. ('093) in view of Lauffer et al. ('253), and further in view of Sunahara (U. S. Patent 6,153,290).

Gorczyca et al. and Lauffer et al. do not disclose a metal film including copper is formed on electrodes of the capacitor, and an electric connection for the electrodes formed with the metal film is established by plating.

Sunahara shows a PCB (9) disclosed in figures 1-4 comprising a capacitor (10), the capacitor having copper electrodes films (22, 23) on both sides of the capacitor.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ teaching 's Sunahara in the PCB of Gorczyca and Lauffer in order to make electrical connection between the PCB and other components.

#### ***Allowable Subject Matter***

4. Claim 6 is allowed.

The following is an examiner's statement of reasons for allowance: the references cited do not teach or render obvious in combination of a PCB having at least a part of electrode of each capacitor being uncoated with a coating layer and exposed to the outside, and an electric connection for the electrode exposed from the coating layer being established by plating.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues:

Neither Gorczyca nor Sunahara teach or suggest "an IC chip mounted on an outer layer thereof, and the capacitors are located immediately below the IC chip."

Examiner disagrees.

Response to argument, Lauffer, which is in combination of Gorczyca, shows an IC chip (235-figure 2) mounted on an outer layer of a package (101), and a capacitor (141) is located immediately below the IC chip (235).

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

  
**EVAN PERT**  
**PRIMARY EXAMINER**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 703-308-1233. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0658.

Tuan Dinh  
November 28, 2003.